

HEALTH TROUBLES OF CITY LIFE

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OF

CITY LIFE.

BY

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PREFACE.

THESE pages deal with the health troubles of City life which are the outcome of the age of competition in which we live. Everyone whose duties bring him into association with men who pass their lives in the centre of commerce must have observed many instances of "break-down" among his own immediate friends. The active man of business who has always seemed so full of life and vigour, suddenly collapses and very often does not recover. Such cases are common, and are becoming more and more frequent as time goes on and competition grows keener. My principal object in writing is to point out the first indications of the exhaustion of the nervous

system, which in most cases underlies and causes these deviations from health, and to point out the extreme folly of disregarding them, however trivial they may appear. I have accordingly given a brief description of the various signs and symptoms which usually mark its early stages, and have indicated a few general rules of life for the benefit of those who are willing to be warned in time, and who wish to render their life as healthy as possible.

If these pages serve to promote this most desirable result my object will be fully attained.

*5, West Street,
Finsbury Circus, E.C.
July, 1889.*

HEALTH TROUBLES OF CITY LIFE.

IT is now recognised by all modern physicians that men whose lives are spent in a city, in the discharge of the active and absorbing duties of commercial life, are subject to a special class of diseases, which are the natural outcome of the age in which we live. The wonderful facilities for communication between distant parts that we possess at the present day is not without its disadvantages. It is true, certainly, that business is facilitated, but at an immense expenditure of nerve energy. The work which used in former times to be extended over weeks and months, is now compressed into days and hours. Nothing strikes a man, whose memory can carry him back fifty years or so, more than the remarkable alteration

in the conditions under which commercial life is now carried on compared with what it was when he was a lad. In those days most of the leading men in the city lived with their families in the house where their business was carried on, and they were not at all badly quartered, some of those houses being veritable mansions. An early breakfast, business leisurely conducted until two or three. Then dinner, followed perhaps by a bottle of good sound port, an hour's nap, sometimes, but rarely, a little more business, a walk with the wife by the river, and bed at ten o'clock. Such was the life of a city man in those days. Now everything is changed. The old houses have been let off into offices, and the head of the firm lives as a rule some miles from the scene of his daily occupation. From the moment he rises, till the time he retires to rest, all is hurry and working against time. First of all the rush to catch his train

to town, then the letters which have to be answered at once, then the daily business rendered more keen and exacting by the enlargement of the arena in which it is carried on, as owing to telegraphic communication the merchant may transact his business almost simultaneously in London, Calcutta, and New York. Even when his work is done he is still in a hurry. If he goes to a theatre he has his last train to catch, and retires to rest having undergone in one day more strain and wear than his predecessor of fifty years ago experienced in a fortnight. All these things, as we shall presently show, exhaust the nervous system, and apart from diseases which may be directly traced to excess in eating and drinking, there is no doubt but that most of the health troubles of city life are caused by this exhaustion of nerve or brain. This is a point too frequently overlooked in actual practice for the following reasons.

Nervous exhaustion is protean in its forms of manifestation. Its symptoms may first appear in derangement of the digestion, of the circulation, or of the nervous system, but disturbance of one function is usually followed before long by troubles in other directions. It is this fact which makes these cases so very complicated, and often causes them to be completely misunderstood. The physician has to deal not only with the primary complaint, but with the symptoms in other parts of the system which have resulted from it, and such complication adds greatly to the difficulties both of diagnosis and of treatment. In other words, besides the initial disturbance of function in any one particular organ of the body, you will get secondary effects manifested in the form of subsidiary alterations of function in the associated organs and tissues of the body. For instance, dyspepsia caused by deficiency of tone in the nerves

which supply energy to the stomach may be the primary complaint. In this case, imperfect digestion of food in the stomach is a natural and inevitable concomitant. The nerves themselves participate in the general starvation of tissue, and grow still weaker. The dyspepsia is increased and perpetuated, and derangement of the nervous system is at once the cause, and a symptom of the disease. In other words, *a vicious circle of disease has been established, which demands most careful treatment to break it.* Nothing more foolish can be imagined than the too common practice of dealing with the derangement of the stomach in a case of this kind, as if it were a mere affection of the organs of digestion. The physician who adopts this course contents himself with administering some palliatives or the like, and with imposing further restrictions upon a diet that has already been curtailed in all probability below the require-

ments of health. The only treatment that will succeed must be directed to strengthening and improving the tone of the nervous system by the various means which modern science has placed at the disposal of the physician.

Before we proceed further it will be as well to consider briefly what are the factors in the life of a city man which tend to produce that state of brain and nerve exhaustion so common at the present day.

If we examine the life of the typical man of business, we shall find that his health troubles may be attributed to one or more of the following causes :—

OVERWORK ;

WORRY ;

ALCOHOL ;

RAILWAY TRAVELLING ;

IRREGULAR MEALS ;

WANT OF EXERCISE AND RECREATION.

These are the chief sins against the laws of health which his mode of life makes him especially prone to commit, and we will discuss them seriatim.

OVERWORK may be defined as work which is not followed by adequate recuperation. Any nervous system will be tried by an excess of mental exertion, but in normal cases the store of reserve energy with which the human constitution is endowed suffices to repair the nervous system and to restore its strength. No amount of mere work will cause permanent injury to a healthy body. There are certain limits to the capacity of the brain for active exertion, and when these are reached the brain refuses to act until its powers have been recuperated by rest. When the brain fails to recover its healthy tone in this way, we may at once declare its conditions to be abnormal and morbid. The natural reserve of nervous energy has been

reduced or exhausted, and we then see before us a genuine case of "overwork."

WORRY is a common cause of the encroachments upon the natural store of reserve energy which have been described in the preceding paragraph. We have seen that under normal conditions nature makes over-exertion of the brain impossible. When the limits of the natural capacity of the brain have been exceeded, it declines to undertake further exertion, unless the warning of nature is overpowered by some stronger influence. This overpowering influence often appears in the form of worry. The man whose mind is occupied with the all-absorbing motives of ambition or of fear, is carried beyond the natural limits of mental labour, and ceases to feel the weariness which acts as a signal for rest in ordinary cases. He has to make larger and larger demands upon the store of nervous energy which he requires for the purposes of

recuperation, until at length his brain is literally "used up."

Worry, again, has an injurious effect by preventing the methodical treatment of work. Order and arrangement are of primary importance in mental exertions, but the man who is worried cannot confine his thoughts to the business before him. His mind is constantly distracted by the anxious thoughts which have caused his worry, and his labour is increased both by the intense strain upon his mind and by the extra time which he has to take for the transaction of business. Here, again, he is obliged to encroach upon his reserve of nervous energy, and his brain will in time break down. The exertion of his mind has ceased to be natural, and he may continue to overtax his energies until he has gone beyond the possibility of recovery.

When I name the influence of ALCOHOL

among the causes of nerve and brain exhaustion, I do not refer to cases of excessive drinking, which are due merely to habits of self-gratification and indulgence. I am dealing with the man of business who uses alcohol as a stimulus to mental exertion. We have seen that worry exhausts the brain by overpowering the sense of fatigue. The use of alcohol may produce a similar effect by deadening the same feeling. Under its influence a man is tempted to disregard the warning voice of nature, and to expend in excessive exertion the reserve forces which are required for recuperation. Stimulants never increase the natural capacity of the brain. They can only abstract for the purposes of work in hand some of the energies which are sorely needed to repair and to restore a brain which has already been taxed to the furthest limit which is consistent with health. To remove the

sense of fatigue caused by overwork by the consumption of alcohol is to close one's ears to the voice of nature. The weariness of the brain is a protest against further exertion until recuperation has been obtained by rest, and if the weary feeling is deadened or destroyed by adventitious means nature will exact her penalty. Exhaustion of the brain is most dangerous when it cannot be perceived, and the man who deliberately rouses his jaded faculties to excessive exertion by alcoholic excitement makes a call upon his reserve energies which he often finds it difficult to repay.

When the overworked man of business, having been on his legs all day and feeling fit to drop, with a sensation of "all-goneness" about the region of the stomach, rouses himself with whatever he is in the habit of taking, be it whisky, champagne, or even tea or coffee, he DOES NOT ADD ONE

ATOM OF FORCE to his stock of energy, although he fancies he does, but having put to sleep his sense of weariness, simply appropriates some of his reserve for the present necessity.

He has accepted a bill at short date to which a ruinous rate of interest is attached, and his resources will not allow him to make many repetitions of the experiment. His account at the bank of life will soon be overdrawn. Alcohol cannot add one iota to his reserve of nervous energy, but it may delude him into exhausting it. The busy man should once for all rid himself of this fancy, that he can create by artificial means an abnormal store of brain power. "*Opposuit natura.*" He cannot enlarge the limits which nature has set up.

Constant RAILWAY TRAVELLING is another cause of nervous exhaustion. Many specialists in nervous disorders have observed that

some constitutions are seriously affected by the daily railway journey to and from business. The reason is not far to seek. The rapid motion and vibration of the train affect the spinal cord, and give a series of shocks to its nervous and muscular structures. In time the whole system may suffer from the nervous exhaustion which follows, and the seeds of many serious diseases may be sown. Everyone knows the baneful effects of a severe concussion of the spine. The same result is produced on a smaller scale by the motion of the train. The concussions which it causes are comparatively slight, but when they are repeated day by day, from year's end to year's end, serious injury may result. I have seen in my own practice a most serious case of spinal neurasthenia caused, I have not the slightest doubt, by a daily journey from Brighton to London and back for several months.

IRREGULARITY OF MEALS is too often the lot of the man of business. He may take but the hastiest of breakfasts before he rushes off to catch his train. When he reaches his office, his thoughts are absorbed in the work before him, and he can rarely tell when it will be finished. Important work may crop up unexpectedly, and at any moment he may be interrupted by callers, welcome or unwelcome. Lunch is for him a moveable and an uncertain feast. Too often he postpones it till his appetite is gone. Perhaps he allays his exhaustion by a glass of wine or spirits. When at last an opportunity of taking a meal arrives, his appetite has vanished and he decides to wait, with or without the aid of a little more alcohol, till dinner time. Dinner, in fact, is his only square meal, and even this is not always taken at a regular hour. The irregularity of the mid-day meal is among the most fertile sources of nervous exhaustion.

WANT OF EXERCISE is another serious factor in the class of cases under discussion. People often misunderstand what the word "exercise" means. Patients sometimes tell me that they are sure they take enough exercise as "they are on their legs all day long." If exhausting work were the same thing as exercise, I should agree with them. But the exercise which is necessary to health must have a recuperative effect. Healthy exercise is impossible unless the mind is free from the hurry and worry of business. It should be sustained enough to induce a slight perspiration, but not so prolonged as to cause exhaustion. Above all, it must be taken in the open air. Fresh air, and mental relaxation are the essential conditions. Mechanical exercise plays a subordinate part, and is of little value unless it secures them. Want of exercise of a salutary kind produces manifold diseases. Piles and venous congestion of the

rectum, constipation, cold feet and inactivity of the liver are among its direct effects. One of the chief beneficial results of exercise is to keep the circulation of the blood in a healthy state. This is effected by the intermitting pressure on the veins caused by the muscular movements which are going on during active exertion of the body. And since we know that most of the uneasy sensations and abnormality of functions complained of by patients suffering from want of nerve tone, are largely due to alterations in the local circulations, it stands to reason that adequate exercise will be a necessity of life to them if they wish to remain in good health, or regain it, if lost. Any person whose occupation is sedentary as regards the body, whilst his mind is kept in constant activity, requires that the circulation through the brain be kept at a normal level in order to support and maintain his intellectual power, other-

wise his power of correct judgment will fail, and he will be unable to keep his attention fixed on a train of continuous thought.

I daresay many of my readers may have noticed that when they have felt quite exhausted both in mind and body after a long day's work, and have walked or driven home in the open air, that the headache and feeling of exhaustion which has oppressed them on leaving the office, had quite vanished by the time they had arrived home, and that when the dinner hour arrived, they had a very fair appetite. By what mechanism has this been effected? Simply by the fact that the circulation in the body has been aroused and accelerated, and the blood which had almost, we may say, stagnated in the lower limbs from prolonged sitting or standing, is again forced through the heart and brain with renewed vigour. Any form of active exercise causes the blood to be more

equally distributed over the body, relieving the congestion of any weak part. The brain being more rapidly supplied with blood, which at the same time is more highly oxygenated from having passed quicker through the lungs, becomes more vigorous, ideas are more vivid, and the individual experiences a general sense of well-being and *bien aise*.

One of the most important effects of exercise is its influence on what is called the metabolism of the body. Every muscular movement that we make, every thought that passes through the brain, is accompanied by waste of some portion of the tissues of the body. These waste products are got rid of by the skin, lungs, and kidneys, principally in the form of carbonic acid, urea, and uric acid. Exercise, by increasing appetite and causing more food to be assimilated, enables the heart to send a larger quantity of blood to these parts, and thus their waste is

repaired without injury to other tissues and organs. Besides this, the excretion of the waste products from the system is also rendered more complete by the increased activity of the secretory organs, viz. : skin, lungs, and kidneys, consequent upon active exercise. This last fact is of the highest importance, as many diseases, notably gout, rheumatism, and probably many functional disorders of the nervous system, are well known to owe their origin to the retention in the system, and circulation in the blood of those waste nitrogenous substances which are undergoing retrograde metamorphosis.

From a consideration of these points we can easily see how it is perfectly impossible for anyone to remain in absolute health for any length of time without an adequate amount of regular daily exercise.

Apart from, but usually associated with exercise, we have RECREATION pure and simple.

Recreation of both mind and body is necessary for the preservation of health. In this busy practical age men concentrate their energies too much upon the mere act of making money. Men of business often deny themselves all social and physical enjoyment, and wear out their lives in the office, deluding themselves with the vain promise that they will take their rest when they shall have attained a certain position in life, or are worth a certain sum of money. But in most cases, when they have actually attained this end, they are not satisfied, but substitute for it another, and yet another, of a still more advanced nature, until the weary brain finds only in the quiet of the grave the rest which its possessor cheated it of during life. Again, when, in some cases, the man having attained his coveted position, has actually retired from active life, and perhaps bought a place in the country, determined to enjoy the remainder

of his days and pass them in rural tranquility, what happens? Why, he very frequently finds that he has *lost the capacity* for enjoying the rest which he has denied himself of for so many years. He pines and frets for the hum and bustle of the city, and in many cases actually dies of ennui. Whilst if he had always taken his share of recreation, he might not have been worth so much in money when he relinquished active life, but would have been immeasurably richer in health and the capacity for enjoying his well-earned repose.

We have now described the chief causes of nervous exhaustion in men of business. We have next to consider briefly its SYMPTOMS, in various organs of the human frame, the TIME OF LIFE at which they usually make their appearance, THE RESULTS which may follow if they are neglected, and the BEST PLAN OF LIVING to be pursued by those who would

escape them and retain their health of mind and body, by making their unavoidable commercial existence as hygienic as possible.

The symptoms of nervous exhaustion are most commonly manifested at two periods in life. They usually appear either in young men, whose faculties are over-taxed, or in middle-aged men, whose energies have been exhausted by a life of toil. A young man may strain his mind to the utmost limit in the effort to take a high place in a competitive examination, or he may be suddenly placed in a position of great responsibility. In either case, he runs the risk of overtaxing an immature brain. The excitement caused by a pardonable ambition to make the most of a promising opportunity carries him through work which he is ill fitted to discharge. The time soon comes when he has to repay his borrowed energies, and in the absence of rest his constitution breaks down.

Medical men constantly come across cases of this kind. Young men *will* make unnatural exertions to obtain a coveted position, and in the moment of success they are unable to reap the fruit of their efforts, as they frequently find that they are quite unfitted in health to carry on the duties of the appointment they have sacrificed so much to obtain.

The other period is later in life. It is the successful man of business, who has worked early and late, has bolted his irregular meals away from home, and even when he has returned home, or to his club, cannot divest his mind of his cares, but continues there his mental calculation of chances of success of the various speculations in which he is engaged. The man whose only idea of a holiday is to sleep out of town, and rush up to business by an early train. He drags himself through his weary days of work year after year. At

last, some new strain is put upon his mind. A time of financial uncertainty or depression may arrive, or his business may demand special efforts, in order to maintain it or to extend its scope. He pulls himself together and manages to surmount his difficulties, but his enterprise cannot undo the harm which he has done to himself. His energies are overtaxed, and he is unable to enjoy the peaceful retirement which he has set before his eyes as the bright goal to be reached when business days are over. He has made his wealth, but he cannot use it for his own enjoyment. His system gives way, and he becomes a confirmed invalid, or, it may be, a general paralytic.

There are, therefore, two periods in life especially dangerous to the overworked man of business, the one, while the mind is maturing, the other, "when the brain has attained its fullest power, and has left behind

it, accomplished, the larger part of its best enterprise and most active labour.”—*Weir Mitchell*.

The symptoms of nervous exhaustion are manifold, and may be manifested in the first instance in the digestive, the circulatory, or the nervous systems.

Disorders of the digestive system are common enough in city men. They come to the physician with complaints of “indigestion,” “biliousness,” or “sluggish liver,” and in most cases their symptoms indicate nervous exhaustion. If the true cause is not recognised, successful treatment is impossible. It is useless to administer remedies to the stomach or the liver if the nervous system is the real seat of the complaint.

I do not, of course, deny for one moment that men of business, like the rest of the world, bring about primary diseases of their digestive organs by errors in diet, and an

intemperate use of alcohol, but I am convinced that such cases are rare, compared with the number of cases where the stomach disorder is merely a local manifestation of a constitutional state. The human body possesses not only the nerves through which we feel, and the nerves which cause the muscles to move, but a third set of nerves, known as the "sympathetic system." These nerves are spread over all the blood-vessels, and pervade the whole body, forming a dense network over the stomach, the liver, and other internal organs. It is this sympathetic system which keeps watch over a man's organic life, and secures the harmonious action of his vital functions. By it the liver is made to secrete bile, the stomach to digest food, the heart to beat. By it the calibre of the blood-vessels is so adjusted as to regulate the quantity of blood which circulates through them, and the secretions of any

organ are increased by carrying an enlarged flow of blood to it, to meet its necessities. Clearly, then, a disorder of the sympathetic system may manifest itself in many directions.

Let us take, by way of example, the effect of nervous exhaustion of the sympathetic nerves distributed to the stomach. When food has been received into the stomach a secretion of gastric juice is needed for its digestion. This secretion is effected by the sympathetic nerves, which send a greater supply of blood to the organ by dilating the blood-vessels of the stomach over which they are distributed. If the sympathetic nerves are unable to perform this task the secretion fails, and indigestion is produced. The efficient digestion of food is absolutely dependent upon the healthy action of the nerves upon the stomach, and the digestive process must inevitably be impaired if the nervous system suffers from vital depression.

There is yet another way in which deficient "nerve tone" of the stomach produces dyspepsia. The walls of the stomach, besides containing the glands which secrete the gastric juice, consist very largely of muscular fibres, and these, when the food has been received into this organ, by contracting in a rhythmical manner, produce a kind of churning movement, which helps to mix the food with the gastric juice, so that every particle of it may be exposed to the action of the digestive juices. Moreover, when the digestion of the food in the stomach is completed, the muscular walls contract and force out the "chyme," as it is called, into the intestines, where the digestion goes on in another form, under the influence of the pancreatic and biliary secretions.

When the stomach is deficient in nerve tone these muscular movements are weak and ineffective. The food not being properly

mixed with the gastric juice is imperfectly digested, and the stomach does not completely get rid of its contents into the intestines. The partially digested food remaining in the stomach ferments, and gives rise to flatulence, which produces painful distension of that viscus. The dilated stomach, by pressing on the surrounding parts, may, and often does produce effects upon organs in its vicinity. It interferes with the heart's action, giving rise to palpitation. By pressing up the diaphragm it may produce alarming shortness of breath. If this state of things continues the stomach becomes permanently dilated, and never being entirely emptied, the remnant of fermenting food leavens the next meal, and causes that also to ferment almost before it is digested. These remarks apply also to the intestines. When the innervation of these is deficient we get indigestion manifesting itself by uneasiness

or pain two hours after the meal, and very often accompanied by constipation or diarrhoea.

These cases cannot be relieved by the ordinary stomachic mixtures and pepsines usually given, but are readily cured by means calculated to raise the tone of the nervous system, such as a course of mild galvanic currents, directed along the course of the sympathetic nerves.

When the symptoms of nervous exhaustion first display themselves in the circulatory system, we usually meet with intermittent action of the heart, with palpitation of the heart, or with flushing of the face.

Intermittency of the heart's actions means a halt in the regular rhythmic stroke of the heart. It may occur at short intervals, or not more often than once in a hundred beats, and the intervals at which it does occur may be regular or irregular. Such irregularity of rhythm usually occurs either in young or in

elderly men. In young men it is most commonly caused by excessive indulgence in tea and tobacco, combined with worry and overwork. Cigarette smoking is particularly likely to produce it. I was recently called upon to treat a young barrister who had overworked himself in preparing for professional examinations, in which he had taken high honours. There was an intermittency in his pulse at regular intervals of five beats, and at each intermittency he felt as though something was "tumbling over in his chest." On inquiry, I found that he was in the habit of drinking several cups of strong tea and smoking as many as two dozen cigarettes every day. He was speedily relieved of his trouble by a return to a more rational mode of life, combined with a course of galvanic treatment of the sympathetic system.

When older men suffer from intermittent action of the heart it is often the first sign of

an approaching "break down" of the nervous system. It is commonly connected with degeneration or imperfect nutrition of the nerve ganglia which preside over the beating of the heart, and in many such cases it will be found that a process of fatty degeneration has already begun to affect the muscular walls of the heart itself. The intermittency in the pulse usually dates from some time when the nerves have sustained a shock through a sudden surprise or calamity, or from some period of worry, or commercial depression, which has tried the patient's system.

Palpitation of the heart cannot be understood by anyone who has not a clear idea of the mechanism which keeps up the regular rhythmic beat of the pulse. My medical brethren will forgive me if I try to explain this to my lay readers in plain and untechnical language. Connected with the heart are

a series of small nerve masses or ganglia, which are really little brains. These form part of the sympathetic system, which I have already alluded to. The stimulus of the blood in the heart is received by them, and returned by them to the heart in the form of the motor impulses, which cause the walls of the heart to contract and to pump out the blood contained within it. This automatic action would cause very frequent beating of the heart if nature provided no check. The heart would be like a clock without a pendulum or balance wheel. The hands would be carried round the dial with great rapidity, and the clock would soon run down, if there were no escapement, in the shape of pendulum or balance wheel, to check undue rapidity and to compel the wheels of the machine to move in fixed and regular rotation. The human heart has equal need of an escapement, and this is furnished by

the “pneumogastric” nerve, which, proceeding from the brain to the stomach and liver, sends some fibres to the heart. This nerve is the channel of a constant current of nerve impulses, proceeding from a centre in the brain, which check the action of the heart and confine it to a fixed number of beats in each minute. Nerve currents through the pneumogastric nerves are continually passing, checking the action of the heart, and compelling it to beat just so many times a minute and no more. If we, experimentally, cut this nerve, the heart, freed from restraint, sets off at a gallop and commences to palpitate. If we irritate this nerve and so increase its action, we can actually stop the movement of the heart. We are now in a position to understand what is the cause of palpitation of the heart. Anything which “inhibits” or stays the action of this nerve, whether it be irritating food in the stomach,

to which the end of this nerve is also distributed, or whether it be some mental emotion arising in the brain, will, by temporarily lessening its action, allow the heart to palpitate. In cases of gout, the poison of uric acid circulating in the blood stops the action of this nerve, hence the frequency of palpitation experienced by sufferers from this complaint.

In the young, palpitation is not of much significance, as it is frequently caused by indigestion, tea or tobacco, but in the middle-aged it is of grave import, as indicating the commencement of serious depression of the vital powers. Here it frequently occurs for the first time in the night, awakening the patient in a fright, and causing great alarm. The hard-worked man of business, who, at the best of times, has as much to do as is good for him, has sometimes to pass through a time of anxiety, caused by commercial

depression, or by unexpected change in the money market. He undertakes excessive exertion of mind and body by day, and his rest is broken by night. In the end he finds he has an irritable heart, and only very slowly is this condition recovered from.

Palpitation is also found in adults with the enlarged thyroid gland and pulsating carotids of exophthalmic goitre or Graves' disease. And here I might draw attention to the fact, that one of the most important means that modern science has placed at our disposal for recognising the incipient stage of general break-down is found in the use of the sphygmograph. This is a little machine which registers the movement of the walls of the artery, caused by the passage of the blood through it, and which is commonly known as the "pulse," in a magnified form upon a strip of smoked paper. This paper is caused to travel by clockwork at a uniform

rate, under a needle, to which a reciprocal movement has been communicated by a series of levers, one of which rests upon, and is moved by, the artery under examination. The pulse trace, or sphygmogram, as it is called, appears on a strip of paper as a series of angular figures or curves, more or less regular. Each of these figures corresponds to one complete beat of the heart, and will be found on analysis to consist of the following parts :

1.—An ascending part or upstroke, which occurs during the dilatation of the artery caused by the flow through it of the wave of blood consequent upon the contraction of the heart.

2.—The apex.

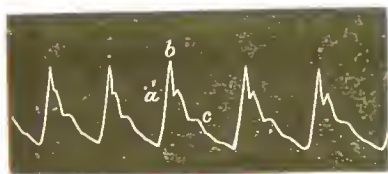
3.—The descending part corresponding to the contraction of the artery. This descending part presents two distinct elevations, the principal of which is termed the “dicrotic

‘wave,” and is caused by a fresh wave of blood which ensues upon the closure of the valves that prevent the return of the blood into the heart when it has been once forced into the arteries.

We can thus easily see how much more can be learnt from the examination of a pulse trace than the most highly educated finger can discover even after prolonged examination. Every slight variation in the force of the heart or the tonicity of the arterial walls is at once registered upon the smoked paper, and can be examined with the greatest exactness. If the upstroke is perpendicular, we know that the coats of the blood-vessels are in such a state that they are able to dilate properly under the pressure of the blood. If the apex is sharp, the down-stroke has commenced instantly, showing that the elasticity of the blood-vessel enables it to recover itself. If the down-stroke does

not commence instantly, the top of the tracing will be flat, showing that the arterial walls have partially lost their elasticity, probably from some commencing degenerative changes.

The dicrotic wave may be diminished, accentuated, or even entirely absent, pointing to various vaso-motor or valvular derangements. The lines composing the pulse-trace should be smooth and even, and not vibratory or jagged. As illustrations I give a few typical tracings. The first an absolutely healthy one, and the others from cases of nerve exhaustion and commencing break-down.



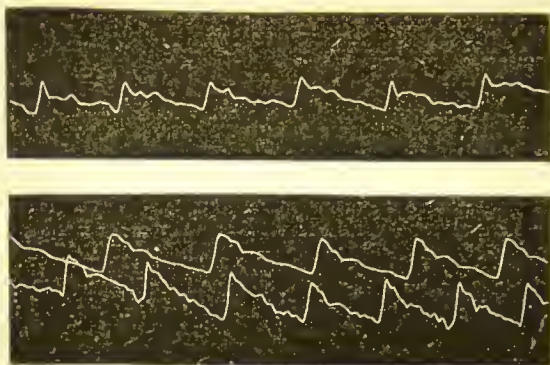
No. 1.

No. 1.—This is a healthy pulse trace.
a, upstroke; *b*, apex; *c*, dicrotic wave.



No. 2.

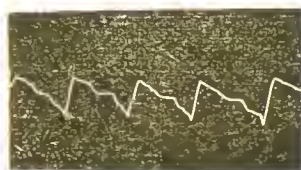
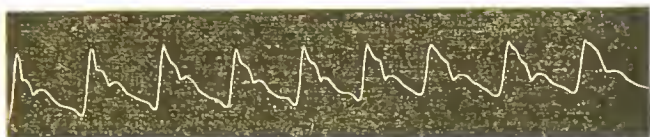
No. 2.—Here you observe that the down-stroke falls suddenly much further than it should do before the dicrotic wave.



No. 3.

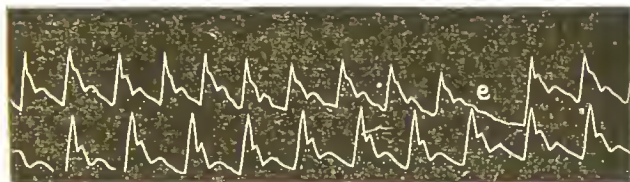
No. 3.—In these tracings the lines are marked by numerous oscillations. This is one of the earliest signs of commencing exhaustion of the nervous system, and often shows itself long before any other signs of disease are manifest. Excessive use of tea and tobacco produces similar alterations in the trace. The above are taken from two

men whose health broke down suddenly after prolonged periods of overwork.



No. 4.

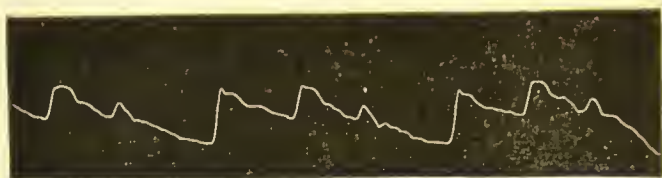
No. 4.—These are taken from the same individuals after recovery under a course of treatment. You will observe they approach very nearly to the normal specimen, No. 1.



No. 5.

No. 5.—This is called an “intermittent pulse.” Once in several pulsations a beat of the heart is left out, and the heart stops. It

is a pure halt occurring amidst regular equal strokes. It may occur after strong emotion, or periods of worry or over-work. (The intermission is marked *c.*)



No. 6.

No. 6.—This is an example of another kind of intermittency. Here you get small rapid beats occurring before the halt, whilst the following beat is comparatively powerful.



No. 7.

No. 7.—This is a halt accompanied by defective beats. It is usually seen in cases of fatty degeneration of the heart. A report of the case from which this was taken was published in the *Lancet*, 1880, by the author.

Flushing of the face is another common sign of approaching exhaustion of the nervous system. The sympathetic nerves are not only distributed to the heart, the lungs, the stomach, and other organs, but form a network over all the arteries and veins, and regulate their calibre, and, as we have seen, adjust the quantity of blood flowing to any part of the body, to its requirements. If these nerves have lost their tone, their action becomes irregular, and an abnormal and unnatural quantity of blood is allowed to flow to one particular part. In this way flushing of the face, or the determination of blood to some other part of the body is produced.

In many cases, as might be expected, the first signs of nervous exhaustion appear in the nervous system itself. It is not at all unusual to find a man who has been engaged for years in carrying on the arduous duties of an active commercial life, and has apparently

enjoyed uninterrupted health and vigour, after some period of special anxiety or worry, suddenly exhibit symptoms of commencing breakdown of his nervous system. He becomes wretched, feeling as though all the cares of the universe were cast upon his shoulders, and as though his responsibilities were more than he could bear. He lives in perpetual dread of unknown dangers, which in his fancy are about to overwhelm and crush him. He finds to his sorrow that he cannot get through his work with his wonted ease. He soon grows tired, and he has lost his old interest in his daily occupation. Before long he is troubled with sleeplessness and bad nights. He cannot lay aside business worries at the close of the day. They follow him into the home of rest, and either prevent sleep or render it unrefreshing. After a time comes occasional giddiness, dimness of sight, and, it may be, some form of neuralgia. His sleep

becomes worse, and he finds increasing difficulty in accomplishing the daily tasks which used to be so easy to him. He begins to lose his memory, and the power of mental control becomes defective. There is no more accurate barometer of varying conditions of the brain than the memory, if rightly studied. It is more vigorous in the morning after a good night's rest than at the close of the day's work. It is stronger when a man is in the prime of youth and manhood than in his declining years. It is temporarily impaired, and in some cases destroyed, by injuries to the head or by severe disease. Profound exhaustion of the nervous centres is inevitably accompanied by a partial and temporary loss of mental control, which shows itself in various ways. The patient's mind wanders away from the work he has in hand, his thoughts are filled with reveries and dreams, he becomes irritable and petulant, and repose

and equanimity disappear. His morbid condition soon affects his memory. He cannot make a calculation or add up a long column of figures without a feeling of distress in his head, usually at the back. He forgets appointments, and overlooks small duties and engagements. At this stage of the disease he finds that a stimulant gives him relief, and enables him to sustain some hours of continuous work with something like his wonted energy, and the use of stimulants becomes a habit with him. Among other symptoms may be noted difficulty in breathing, and occasional palpitations or intermittency of the pulse. Distressing sensations may attack any of the internal organs. Some patients are suddenly seized with a sense of panic at the pit of the stomach, accompanied by great prostration; others suffer from alarming symptoms in the heart, in the lungs, in the liver, or in the

kidneys. One very common symptom in this class of cases is a sense of weight, sometimes amounting to actual pain, in the head, usually at the top and on one side of the middle line. This sensation causes extreme annoyance to the patient, and destroys all his pleasure in life. It may, I think, be easily explained. In all the organs of the body various processes of nutrition and functional activity are continually taking place, which in a healthy system are unaccompanied by any sensation. In certain states of depression the patient becomes conscious of these processes, and he is troubled with actual subjective sensations which cause him serious annoyance. These forms of disease rarely affect the patient at all times, but come and go without any apparent or assignable reason. Like other subjective sensations referred to the nervous system, they observe the rule of intermittency—the rule without a rule under which

both the period and the duration of the different attacks vary considerably. Most patients of this class will give something like the following description of their troubles. They just feel an undefinable but highly disagreeable sensation at the pit of the stomach, which they can only describe as a sort of "all-gone-ness." This peculiar sinking is followed by a feeling of weight in the head, which soon passes away, but leaves them in a miserable state of exhaustion. The feeling of exhaustion may suddenly disappear after a time, though it is impossible to tell how long it will last. Patients will describe the moment when the attack passes off as if a heavy cloud were suddenly lifted from them. After an interval of uncertain duration they will experience another attack. As has already been mentioned, the nervous exhaustion of the brain worker is usually accompanied by serious functional derangements of the brain,

heart, or stomach. In most cases we meet with the following combination of symptoms:—insomnia, palpitation, or intermittency of the heart's action, flatulence, a sensation of weight or actual pain in the head, giddiness, pain at the bottom of the back, and a copious deposit of urates, or red sand in the urine. In other cases we get chiefly weakness and exhaustion, trembling, disordered sensations and strange feelings in the feet, legs or arms, with vasomotor anomalies such as flushing. In these cases the spinal functions are principally affected.

Cases of disease depending upon exhaustion of the nervous system, if not properly treated, usually go from bad to worse. The direction in which the morbid processes drift is largely determined by the organs of the body whose functions are chiefly affected. If the digestive system is at fault, the patient, from inability to assimilate a sufficient amount of

food for the needs of the organism, will emaciate and possibly become phthisical. I maintain that the great proportion of cases of phthisis occurring in middle-aged adults are due to the exhaustion of the nervous system and the effects of its attendant dyspepsia in starving the body.

When the symptoms of breakdown are most apparent in the nervous system, we frequently find that organic disease supervenes upon the functional after a time, and the patient becomes the subject of either locomotor ataxia, general paralysis, or some other structural disease of the nervous system. Dr. Spitzka, in his work on insanity,* says, "Dr. Crichton Brown has described as 'chronic brain-wasting' a disorder in which there is confusion and failure of the memory, lack of attention, and general inertia. With

*"Insanity: its Classification, Diagnosis and Treatment," 1883. p. 164.

this the muscular power is enfeebled, and the articulation is affected, the pupils are unequal, and the temperature is subnormal, while the patient generally complains of a sensation of pressure and fulness in the head. Convulsive attacks occurring on one or both sides heighten the resemblance to parietic dementia, and the progress of the disease, *with rare exceptions in which recovery occurs*, is toward complete extinction of the mental faculties."

The writer has observed a similar condition among business men, particularly among those whose duties were of a varied, exciting, and exhausting character, who, with an expensive domestic establishment on the other hand, resorted to the Stock Exchange to make good the difference. It is also not uncommon with members of the legal and other professions, to the practice of which excitement and strain are incidental. In short, the etiology of this affection is very similar to

that of paretic dementia, and it may not be improper to consider it as it were a functional analogue of that organic malady. The first signs noticed are generally recognized by the patient himself. He experiences a lack of energy, both mental and physical. The warning being disregarded and the strain kept up, the abused nervous system replies with insomnia. The patient finds it difficult to go to sleep, and when he finally drops off into a brief and fitful slumber, it fails to refresh him, and the irritable condition of his brain manifests itself in dreams, whose subjects are generally taken from his daily occupation and cares. The patient now becomes dyspeptic, and signs of functional or organic heart disorder, or of the prodromal period of Bright's disease may be noted by the examining physician. Often the patient becomes prematurely gray or bald. There can be little doubt that continuous mental

worry and emotional strain are competent to provoke all these disorders, particularly in predisposed individuals. At this stage the warning may be heeded, and a healthful mental state resumed under treatment; but if the exciting causes are kept in operation actual dementia may be the result. At first the subject is noted to be absent minded; the lawyer finds that he is unable to fix his attention on his opponent's argumentation; the physician discovers that he is at a sudden loss in writing prescriptions, and forgets to add important directions, not in single instances, but repeatedly; the stenographer finds that his hand fails him; and the literary man omits words, or misspells, when he was previously methodical and accurate. Important engagements are broken, articles of value mislaid, addresses forgotten, expenditures unrecorded, and with the intensification of all these symptoms, complete fatuity may be

developed. Yet it is noteworthy, that while the memory fails, attention becomes difficult, and the power of acquiring new impressions is impaired, the patient may in fits and starts show his old brilliancy in reasoning. Let him, however, attempt to keep up the effort for any considerable length of time and he will break down.

On the basis of the condition just described any of the primary simple psychoses may develop, and it may prove to be the preliminary phase of paretic dementia. As a rule, complete rest and proper tonic and moral treatment are capable of checking the disorder at any but its late periods.

We have now reviewed the causes and the symptoms of the disorders which specially attend city life, and the problem now presents itself, how can the man, whose lot it is to labour in a commercial centre, so order his life as to escape the troubles to which we have

drawn attention? The following rules will, I am convinced, do much to minimise the dangers which militate against his health.

In the first place, if he lives out of town, his hour of rising must be early enough to enable him to take his breakfast at leisure and to catch his train without having to hurry. A sponge bath will be beneficial if he is strong enough to take it. If he cannot bear sponging with cold water, he can apply tepid salt water to all parts of his body with a flesh glove and afterwards give himself a good rub down with a rough towel. He must never allow anxiety to catch his train to interfere with due attention to the regular action of the bowels. Unless he is remarkably tolerant of tobacco, he should not smoke during the journey into town.

Many people are misled by the idea that in order to be cured of indigestion, or to remain healthy, they must adopt fixed and invariable

rules in eating and drinking. This is a complete delusion. The man who resolves to confine himself to a carefully regulated diet for the remainder of his life will never attain to health or vigour. Nature has not constructed us to live by strict rule. Certain instincts and desires with regard to food have been implanted within us, and the more closely we follow these, the more nearly we shall approach health. Any article of food will generally agree with a man at a time when he feels a strong inclination to take it, although he may not be able to digest the same food when he has no special fancy for it. These remarks, of course, do not apply to patients who suffer from diabetes, gout, and other disorders which necessitate the strict observance of dietetic rules. But, apart from these exceptional cases, attention to a few general hints, as regards food, will do more to preserve or to restore health than

the most careful diet table that can be devised.

Food must be taken after the long night's rest before any action, exertion, or material business of the day is taken in hand. There are few greater mistakes than "a sharp walk before breakfast." It may do no harm, at least, for a time, to remarkably vigorous constitutions, but it cannot fail to prove injurious to men of business whose nervous system is wanting in tone. Any exercise which he undertakes before taking food exhausts his reserve of energy by diverting into another channel the nerve force which is naturally employed in digestion of the morning meal. The man who cannot eat a good breakfast may be sure that his nervous system is not in good order, although he may fancy that he enjoys vigorous health. If he cannot stand this test, he should lose no time in ascertaining which of his habits is at fault. Breakfast should

include meat or eggs, and the meal should not be ended until the appetite has been fully satisfied.

From four to five hours should elapse between breakfast and luncheon, and a fair meal should then be made. If too light a luncheon be taken you will be faint and exhausted at dinner time, and will not be able to eat well. The practical rule for mid-day meal is, that enough food must be taken to enable a man to sit down to dinner in the evening with a good appetite, and without any feeling of exhaustion.

The principal meal should not be taken in the middle of the day by anyone who has work to do in the afternoon. Active exertion of mind or body retards digestion, and dinner, therefore, should be taken when working hours are ended. Sleep also retards digestion, and therefore no one should indulge in an after dinner nap. The after

dinner hours should be spent in easy relaxation of mind and body, such as may be found in a game of cards or billiards, music or general conversation. Dinner should be fixed for an hour which does not leave enough time for hunger to be felt before bedtime, but anyone who is from any cause kept up late should not hesitate to take some light food before going to bed. A cup of tea taken an hour after dinner may be recommended, as it supplies the fluid necessary for the digestion of food, but the small cup of black coffee and liqueur which many people take as soon as the meal is ended, are decidedly injurious.

Alcohol should *never* be taken between meals. We have seen that it blunts and suspends the natural action of the nervous system, and nervous exhaustion is never more dangerous than when it is not perceived by the patient. The man who takes alcohol between meals as an artificial stimulus to

mental exertion will very often in the end break down suddenly, and will require the most careful and prolonged treatment to restore him to health. But the consumption of alcohol with a meal is not open to the same objections. A man who has tried himself with intellectual exertion will derive benefit from a moderate amount of alcohol at meals. It checks the wear of the system, and diverts the nervous forces into the proper channel, viz. : the digestion of food. The quantity to be consumed at a meal should be regulated by the effect upon the appetite of each individual. Enough should be taken to enable one to eat a better dinner, to increase the appetite, and not to impair it. The best kinds of alcoholic drinks are red or white wines or unadulterated beer. Draught beer from a public house should always be avoided. Most London brewers assume that the beer they supply to them will be consumed so quickly,

that more or less vinegar in it will do no harm, as it will not have time to ferment the contents of the barrel before being used. They therefore habitually neglect to wash out the vats between each successive brew. Consequently, most of the beer supplied to public houses is on the verge of the acetic acid fermentation. There is no more fertile source of gout, rheumatism, and the like, than beer which is undergoing this baneful process and preparing to turn into vinegar in the stomach. If a man drinks beer he should make a point of ordering it in the cask from a good house or in bottles. In choosing wine there is the proverbial difficulty of finding a thoroughly honest wine merchant. When a wine merchant has been found whose honesty can be trusted, the best wine to select is a sound ordinary claret or Burgundy, which he has imported himself and bottled after importation.

The use of tobacco cannot be recommended before the day's work is done. It has then, as a rule, a beneficial effect, if used in moderation. Cigarettes should in all cases be avoided. In the first place, the cigarette smoker consumes much more tobacco than he imagines. Only those who have tried to make cigarettes have any idea of the amount of tobacco they contain. The mucous membrane of the throat and mouth suffer much irritation from the burning of so much finely cut tobacco close to the face. Again, the Egyptian tobacco, of which most cigarettes are made, is, as has been recently proved, far more injurious than the American blends. The best form of tobacco is a well-matured Havana. It contains least nicotine and the highest proportion of the aromatic qualities which make smoking pleasurable. After a good Havana comes a clean pipe with a good honeydew tobacco, cut moderately fine, and

not artificially flavoured with valerian or Tonquin bean. Tobaccos cut abroad should be eschewed, as they generally receive an artificial flavour. They are also adulterated with glycerine, to keep them moist, and glycerine in combustion is converted into a peculiarly unpleasant and injurious substance called acrolein.

The most important of all rules of health for the man of business is to strictly confine his work to the proper time and place. Business worries should never be imported from the office into the home. The hours which remain when the day's work is done should be devoted only to rest, recreation, and exercise. The city man who lives out of town should try to leave his office in time to indulge in an hour or two of relaxation before dinner. He cannot hope to maintain the "*mens sana in corpore sano*," unless he secures a proper amount of exercise. Of all

forms of exercise, riding is one of the best. It promotes the circulation through the liver, prevents constipation, and diverts the thoughts—especially if the horse is rather fresh. If he lives in town, he will be well advised if he joins the “liver brigade” of gentlemen who ride in Hyde Park early in the morning. In that case, he must not omit to take a light breakfast, such as a cup of cocoa and a little dry toast buttered, before starting. Exercise in a riding school is a fair substitute, and enables one to take one’s daily exercise in an hour or so. You can choose an easy horse when tired or out of sorts, while a man in vigorous health should mount a rough horse without stirrups and shake up his liver well for about forty minutes. Gentlemen who wish to reduce excessive fat will find no remedy to equal this. In my own experience I have come across more than one man who has reduced himself several inches in girth by

taking an hour's daily exercise in a riding school for a few months in succession. After riding, the best forms of exercise are cycling and rowing. Walking exercise does good, but it should always be taken with a companion. If taken merely as a duty, it becomes monotonous and uninteresting. Whilst taking exercise one should wear a costume existing entirely of woollen material, so that the sweat may not cool upon the body and give rise to cold. Whatever form of exercise is taken, the guiding rule is that it should suffice to produce a slight amount of perspiration.

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